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THIS STUDY EVALUATED THE AMOUNT OF APPARENT ROOT RESORPTION (RR) IN THE INCISORS THAT DEVELOPED FOLLOWING NON-EXTRACTION TREATMENT TO CORRECT CLASS II MALOCCLUSIONS WITH EITHER THE FORSUS OR XBOW APPLIANCE

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Objectives: This study evaluated the amount of apparent root resorption (RR) in the incisors that developed following non-extraction treatment to correct class II malocclusions with either the Forsus or Xbow appliance.

Methods: 70 Pre-treatment (T1) and post-treatment (T2) panoramic radiographs of consecutively treated patients were assessed for RR. RR was calculated by subtracting tooth length (T1 from T2) and multiplying it by the adjusted crown length (T1 divided by T2). Additionally, Two titanium beads were placed on a rapid prototyping (RP) model of the maxillary and mandibular incisors at the apical and incisal edge. The apparent radiographic length was measured from the mid-point of the beads on the incisal and apical edge. This value was compared to the known length and adjusted for magnification using the calculation mentioned previously.

Results: Of the clinical cases assessed, 1.4% showed no resorption, whereas 62.9% reported mild to moderate resorption (32.9% mild resorption, 30% moderate resorption). Finally 35.7% of the cases studied, had at least one incisor with severe resorption, with 80% of the severe cases involving the mandibular incisors. RP tooth models, measuring the effects of angular changes of incisors on the projected length of tooth, confirmed the clinical findings that as the mandibular incisors procline, the angular change produces an apparent RR when visualized on a panoramic film.

Conclusions: By developing an appreciation for the amount of radiographic foreshortening that may occur due to incisor angulation, clinicians may better recognize cases of true RR vs. cases of apparent RR due to foreshortening.